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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,254	12/12/2003	Kevin Cowles	HITIP118	9799
50535	7590	05/10/2007	EXAMINER	
ZILKA-KOTAB, PC			KIM, PAUL D	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/735,254	<b>Applicant(s)</b> COWLES ET AL.	
	<b>Examiner</b> Paul D. Kim	<b>Art Unit</b> 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,9-11 and 14-28 is/are pending in the application.
- 4a) Of the above claim(s) 17-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9-11 and 14-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is a response to the amendment filed on 2/22/2007.

#### ***Drawings***

1. The drawings were received on 1/11/2007. These drawings are accepted.

#### ***Claim Objections***

2. Claims 1, 3-5, 9-11 and 14-16 are objected to because of the following informalities:

Re. Claim 1: Before the phrase "dielectric layers" as recited in line 5, add the phrase --one or more--. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-5, 9-11 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albrecht et al. (US PAT. 6,052,258).

Albrecht et al. teach a process of making conductive connection between conductive layers (150, 154), wherein the conductive layers are separated by one dielectric layer (152) comprising steps of: forming a round via at least one of the conductive layers and in the at least one dielectric layer as shown in Fig. 17; applying a conductive material (650, an electrically conductive epoxy) to the exposed portions of

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the conductive layers through the via, the conductive material creating an electrical coupling between the conductive layers as shown in Fig. 17; and grounding (170, 172) at least one of the conductive layers (150) to a controlled ground potential as shown in Fig. 18 (see also col. 3, line 26 to col. 4, line 8 and col. 7, line 13 to col. 8, line 63).

However, the shape of the via of Albrecht et al. is the round shape, not a cross shape. Even though the shape of the via of Albrecht et al. is the round shape, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the cross-shaped via as recited in the claimed invention because Applicant has not disclosed that the cross-shaped via as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Albrecht et al. because the cross-shaped via as recited in the claimed invention would perform equally well such as providing large contact surface with the round-shaped via in Albrecht et al. Therefore, it would have been an obvious matter of design choice to modify the round-shaped via of Albrecht et al. to obtain the invention as specified in claim 1.

As per claim 3 a material of one the conductive layers (150) is copper and a material of the other of the conductive layers is stainless steel (154).

As per claim 4 the conductive material is a conductive adhesive such as conductive epoxy.

As per claim 5 one of the conductive layers (150) is grounded to the controlled ground potential using one or more dedicated ground paths etched from one or more of the conductive layers as shown in Fig. 18 (col. 3, lines 33-36).

As per claims 9-11 Albrecht et al. teach all of the limitations including the conductive material made of the conductive epoxy, but fail to teach soldering process. In the manufacturing the magnetic head, the soldering process for the magnetic head element is well known in the art. Therefore, since the soldering process for the magnetic head element is old and well known and used for manufacturing the magnetic head, the soldering process of any part of the magnetic head is used for electrically connecting between the conductive layers. In addition, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to apply the solder as recited in the claimed invention because Applicant has not disclosed that the solder as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Albrecht et al. because the solder as recited in the claimed invention would perform equally well such as conductive epoxy for electrically connecting between the conductive layers in Albrecht et al. Therefore, it would have been an obvious matter of design choice to modify the conductive epoxy of Albrecht et al. to obtain the invention as specified in claims 9-11.

As per claim 14 at least one of the exposed conductive layer is exposed as shown in Fig. 17.

As per claims 15 and 16 the conductive layers form part of a lead suspension (32) for suspending an electric component such as a magnetic head (30) shown in Figs. 2 and 3.

5. Alternatively, Claims 1, 3-5, 9-11 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albrecht et al. in view of Sota et al. (US PAT. 6,285,086).

Albrecht et al. teach all of the limitations as set forth above except a cross-shaped via. Sota et al. teach cross-shaped vias formed in a wiring board in order to provide to stress alleviation both in longitudinal and traverse directions. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a round-shaped via of Albrecht et al. by a cross-shaped via as taught by Sota et al. in order to provide to stress alleviation both in longitudinal and traverse directions.

### ***Response to Arguments***

6. Applicant argues that the prior art of record fails to disclose the claimed invention such as the cross-shaped via. Examiner traverses the argument. Even though the shape of the via of Albrecht et al. is the round shape, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the cross-shaped via as recited in the claimed invention because the cross-shaped via as recited in the claimed invention would perform equally well such as providing large contact surface with the round-shaped via in Albrecht et al. It is to be expected that a small change in physical attributes would be an unpatentable

modification. Under some circumstance, a small change in physical attributes may impact patentability to a process if particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the result of the prior art. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such criticality. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. More particularly, where the general conditions of claims are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In this instance applicant has failed to establish the cross-shaped via as claimed is critical from the prior art.

Therefore, it would have been an obvious to modify the round-shaped via of Albrecht et al. to obtain the invention as specified in claim 1. In addition, Sota et al. teach cross-shaped vias formed in a wiring board in order to provide to stress alleviation both in longitudinal and traverse directions.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D. Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Thursday between 6:00 AM to 2:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim  
Primary Examiner  
Art Unit 3729